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Japanese Kokai Patent Application No. Hei 4[1992]-255012

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ATTACHMENT STRUCTURE FOR A CLUTCH PEDAL

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[There are no amendments to this patent.]

Abstract

Objective

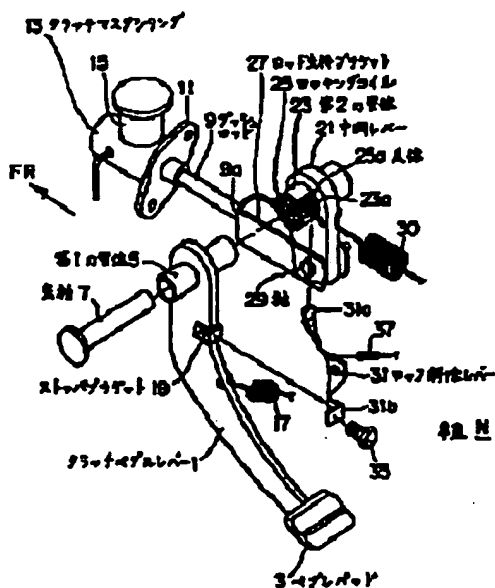
The objective of this invention is to provide an attachment structure for a clutch pedal, characterized by the fact that it is possible to adjust the height and the position in the

KSR 003147

back-and-forth direction of the clutch pedal lever for vehicle without changing the position of the clutch master cylinder and the length of the push rod, and it has a high operability in the adjustment.

Constitution

Between clutch pedal lever (1) and push rod (9) of clutch master cylinder (13), intermediate lever (21) positioned parallel to said clutch pedal lever (1) is set; first tube body (5), which is fixed through the portion near the upper end portion of said clutch pedal lever (1), and second tube body (23), which is fixed through the portion near the upper end portion of said intermediate lever, are fitted to each other via locking coil (25); rod supporting bracket (27), on which one end portion of said push rod (9) is connected in rockable manner, is rotatably pivoted on the portion near the lower end portion of said intermediate lever (21); and, on said clutch pedal lever (1), lock releasing lever (31) for releasing the fastening force of said locking coil (25) is attached.



Key:	N	Vehicle chamber
	1	Clutch pedal lever
	3	Pedal pad
	5	First tube body
	7	Supporting shaft
	9	Push rod
	13	Clutch master cylinder
	19	Stopper bracket
	21	Intermediate lever

- 23 Second tube body
- 25 Locking coil
- 25a Hook
- 27 Rod supporting bracket
- 29 Shaft
- 31 Lock releasing lever

Claim

A type of attachment structure for a clutch pedal, characterized by the following facts: in this hydraulic type of attachment structure for a clutch pedal, a tube body fixed through the portion near the upper end portion of the clutch pedal lever and a supporting shaft fixed on the side of the vehicle body are fitted in a rotatable manner, and, under the stepping force by the driver on the clutch pedal lever, a push rod, which is inserted for connection in the clutch master cylinder is pushed; in this type of attachment structure for a clutch pedal, between the clutch pedal lever and the push rod of the clutch master cylinder, an intermediate lever positioned parallel to said clutch pedal lever is set; a first tube body is fixed through the portion near the upper end portion of said clutch pedal lever, and a second tube body is fixed through the portion near the upper end portion of said intermediate lever; the first tube body and the second tube body are fitted to each other via a locking coil; a rod supporting bracket, on which one end portion of said push rod is connected in rockable manner, is rotatably pivoted on the portion near the lower end portion of said intermediate lever; and, on said clutch pedal lever, a lock releasing lever for releasing the fastening force of said locking coil is attached.

Detailed explanation of the invention

[0001]

Industrial application field

This invention pertains to an attachment structure for the clutch pedal for use in the hydraulic clutch for vehicle use.

[0002]

Prior art

With respect to structures, the clutches for vehicles can be roughly classified as friction clutches, hydraulic clutches, and electromagnetic clutches. Figure 4 is a diagram illustrating the attachment structure usually adopted for the clutch pedal of the aforementioned hydraulic clutch. In this structure, pedal pad (3) is attached to the lower end portion of clutch pedal lever (1); tube body (5) is fixed through the portion near the upper end portion of said clutch pedal lever (1); and supporting shaft (7), which has one end fixed on the body of the vehicle, is fitted in said tube

body (5) in a rotatable manner. One end portion (9a) of push rod (9) is pivoted at an appropriate site at nearly the middle portion of clutch pedal lever (1), and the other end of said push rod (9) in the front FR direction is inserted for connection through attaching bracket (11) in clutch master cylinder (13). (15) represents a reservoir tank installed on said clutch master cylinder (13), and (17) represents a spring return for returning clutch pedal lever (1).

[0003]

In the aforementioned constitution of the clutch pedal, when the driver steps on pedal pad (3), push rod (9) pushes on clutch master cylinder (13). Consequently, based on this pushing operation, due to the functional fluid within clutch master cylinder (13), the pressing load of the clutch disk, coupled in a sliding manner onto the input shaft of the transmission unit (not shown in the figure), is released, and the clutch becomes in the OFF state. Also, under action of spring return (17), clutch pedal lever (1) returns, and the pressing load of the aforementioned clutch disk acts so that the clutch becomes ON, and the power of the engine is transferred through the clutch disk to the transmission unit.

[0004]

Problems to be solved by the invention

However, for the conventional attachment structure for the clutch pedal lever, when the vehicle is assembled, it is hard to adjust the height of clutch pedal lever (1) and its position in the back-and-forth direction, and the assembly operability degrades. This is a disadvantage.

[0005]

That is, in order to adjust the height of clutch pedal lever (1) and its position in the back-and-forth direction, one has to change the position of said supporting shaft (7) fixed on the side of the vehicle body, and, at the same time, to change the position of attachment of clutch master cylinder (13) matched to clutch pedal lever (1). Also, in company with such position adjustment, there is often a requirement to change the length of push rod (9). In such a case, it is necessary to change push rod (9).

[0006]

In consideration of the layout, clutch master cylinder (13) is usually attached to the front side of the lower dash panel via attaching bracket (11). Consequently, in consideration of the site of attachment of said clutch master cylinder (13), it is hard to perform the aforementioned operation. This is a disadvantage.

[0007]

The purpose of this invention is to solve the aforementioned problems of the conventional technology for the attachment structure for the clutch pedal by providing a attachment structure for the clutch pedal characterized by the fact that it is easy to adjust the height of the clutch pedal lever and its position in the back-and-forth direction, and it has good assembly operability.

[0008]

Means to solve the problems

In order to realize the aforementioned purpose, this invention provides a type of attachment structure for a clutch pedal, characterized by the following facts: in this hydraulic type of attachment structure for a clutch pedal, a tube body fixed through the portion near the upper end portion of the clutch pedal lever and a supporting shaft fixed on the side of the vehicle body are fitted in a rotatable manner, and, under the stepping force of the driver on the clutch pedal lever, a push rod, which is inserted for connection in the clutch master cylinder is pushed; in this type of attachment structure for a clutch pedal, between the clutch pedal lever and the push rod of the clutch master cylinder, an intermediate lever positioned parallel to said clutch pedal lever is set; a first tube body is fixed through the portion near the upper end portion of said clutch pedal lever, and a second tube body is fixed through the portion near the upper end portion of said intermediate lever; the first tube body and the second tube body are fitted to each other via a locking coil; a rod supporting bracket, on which one end portion of said push rod is connected in rockable manner, is rotatably pivoted on the portion near the lower end portion of said intermediate lever; and, on said clutch pedal lever, a lock releasing lever for releasing the fastening force of said locking coil is attached.

[0009]

Function

For the attachment structure for a clutch pedal with the aforementioned constitution, when the height of the clutch pedal lever and its position in the back-and-forth direction, the lock releasing lever is loosened such that the fastening force of the locking coil is reduced, and it is possible to remove the first tube body fixed on the clutch pedal lever from the second tube body fixed on the intermediate lever set parallel to the first tube body. Then, after the position of attachment of the supporting shaft fitted with the first tube body on the panel on the vehicle body side is adjusted appropriately, the second tube body fixed on the intermediate lever is fitted to said first tube body (5) via the locking coil, and, by fixing the lock releasing lever, the fittedting state between said first tube body and second tube body is maintained.

[0010]

The angle of said intermediate lever can be adjusted at will, and the push rod is pivoted to near the lower end portion of the intermediate lever. Consequently, it is possible to adjust the first tube body and second tube body along the rotating locus of the second tube body without affecting the length of the push rod.

[0011]

Application examples

In the following, with reference to Figures 1-3, an application example of the attachment structure for the clutch pedal in this invention will be explained in detail, with the same part numbers in the aforementioned prior art used to represent the same structural parts here.

[0012]

In the figure, (1) represents the clutch pedal lever. Pedal pad (3) is attached to the lower end portion of said clutch pedal lever (1). Said first tube body (5) is fixed through the portion near the upper end portion of said clutch pedal lever (1). In said first tube body (5), supporting shaft (7) which has one end fixed on the side of the vehicle body is fitted in a rotatable manner. (17) represents the spring return for return of clutch pedal lever (1). (19) represents a stopper bracket which is fixed on the portion near the middle portion of the side of vehicle chamber N of clutch pedal lever (1) and which presses and supports lower end portion (31b) of lock releasing lever (31) to be explained in detail later.

[0013]

On the other hand, (21) represents the intermediate lever set between said clutch pedal lever (1) and push rod (9) of clutch master cylinder (13). Said intermediate lever (21) is set parallel to clutch pedal lever (1). Second tube body (23) is fixed through the portion near the upper end portion of said intermediate lever (21). Said second tube body (23) has a diameter and a length that allow insertion of said first tube body (5), and hole portion (23a) is opened on the tube wall of said second tube body (23).

[0014]

(25) represents a locking coil set in second tube body (23). Hook (25a) formed on one end portion of said locking coil (25) protrudes out from said hole portion (23a). That is, when said hook (25a) is pushed in the fastening direction, said first tube body (5) is fastened and reliably fixed by said locking coil (25).

[0015]

Near the lower end portion of said intermediate lever (21), two edges of two-prong shaped rod supporting bracket (27) are pivoted by shaft (29). On the front FR side of said rod supporting bracket (27), one end portion (9a) of push rod (9) is connected in a rockable manner. The other end portion of said push rod (9) is inserted for connection into clutch master cylinder (13) via attaching bracket (11). (30) represents a spring return for return of intermediate lever (21), and (15) represents a reservoir installed on clutch master cylinder (13).

[0016]

(31) represents a lock releasing lever attached to clutch pedal lever (1). As shown in the assembly diagram of Figure 2, upper end portion (31a) of said lock releasing lever (31) is in contact with hook (25a) of said locking coil (25). Lower end portion (31b) of said lock releasing lever (31) is fixed as it is pressed on said stopper bracket (19) by means of bolt (35) screwed on supporting plate (33) protruding from the side of the vehicle body. (37) represents a spring return for return of lock releasing lever (31).

[0017]

For the clutch pedal with the aforementioned constitution, when the driver steps on pedal pad (3) in the assembled state shown in Figure 2, the stepping force causes first tube body (5) in the figure to rotate by a prescribed angle clockwise. Rotation of said first tube body (5) is transferred via locking coil (25) to second tube body (23). Said second tube body (23) also rotates clockwise. Consequently, the movement of said second tube body (23) is transferred to rod supporting bracket (27) pivoted near the lower end portion of intermediate lever (21), such that rod supporting bracket (27) is moved in front FR direction, and, by means of push rod (9), clutch master cylinder (13) is operated. By means of the operational fluid within clutch master cylinder (13), the pressing load of the clutch disk coupled in a sliding manner to the input shaft of the transmission (not shown in the figure) is removed, and the clutch becomes OFF.

[0018]

Also, when the driver stops stepping on pedal pad (3) is stopped, clutch pedal lever (1) returns, due to the action of spring return (17), said pressing load of the clutch disk acts to connect the clutch, and the power of the engine is transmitted through the clutch disk to the transmission unit.

[0019]

In the following, explanation will be made as to the function when the height of clutch pedal lever (1) and its position in the back-and-forth direction are adjusted during vehicle assembly. First of all, bolt (35) screwed on supporting plate (33) is loosened, such that the pulling force of spring return (37) is made to act, upper end portion (31a) of lock releasing lever (31) is released from hook (25a) of locking coil (25), and the fastening force of said locking coil (25) on first tube body (5) is reduced. Consequently, it is possible to remove first tube body (5) from second tube body (23). In this case, intermediate lever (21), on which said second tube body (23) is fixed, is rotated to the side of vehicle body N around shaft (29) by means of spring return (30).

[0020]

Then, said first tube body (5) is pulled off of supporting shaft (7), and, after the attachment position of said supporting shaft (7) on the panel on the vehicle body side is adjusted appropriately and fixed, first tube body (5) is again fitted on said supporting shaft (7). Then, while intermediate lever (21) is pulled up against the elastic force of spring return (30), second tube body (23) fixed through said intermediate lever (21) is fitted in said first tube body (5) via locking coil (25). Then, bolt (35) is fastened, such that upper end portion (31a) of lock releasing lever (31) becomes in contact with hook (25a) of locking coil (25), and lower end portion (31b) of said lock releasing lever (31) is pressed on stopper bracket (19) fixed on clutch pedal lever (1), so that the fittedting state between said first tube body (5) and second tube body (23) is maintained.

[0021]

When clutch pedal lever (1) is adjusted in the aforementioned manner, it is possible to change the angle of intermediate lever (21) around shaft (29) at will, and, as rod supporting bracket (27), on which push rod (9) is fixed, is pivoted in a free rotatable manner with respect to shaft (29), it is possible to adjust first tube body (5) and second tube body (23) along the rotary locus of second tube body (23) around shaft (29). Also, fitting of said tube bodies (5) and (23) does not affect the length of push rod (9), and position adjustment of clutch pedal lever (1) can be carried out easily.

[0022]

Also, by appropriately changing the size of intermediate lever (21), it is possible to change the rotating locus of second tube body (23) around shaft (29). Consequently, by

appropriately selecting said intermediate lever (21), it is possible to set clutch pedal lever (1) at the optimum position corresponding to the vehicle.

[0023]

Consequently, in this application example, when the position in the back-and-forth direction and height of clutch pedal lever (1) are adjusted, there is no need to change the attachment position of clutch master cylinder (13) or the length of push rod (9) corresponding to clutch pedal lever (1). Consequently, this operation can be carried out very easily and there is no need to change push rod (9). This is an advantage.

[0024]

Effect of the invention

As explained in detail in the above, the attachment structure for a clutch pedal of this invention has the following functions and effects.

[0025]

That is, when the height and the position in the back-and-forth direction of the clutch pedal lever are adjusted, the fastening force of the locking coil is reduced as the lock releasing lever is loosened, and it is possible to remove the first tube body fixed on the clutch pedal lever from the second tube body fixed on the intermediate lever set parallel to the first tube body. Consequently, after appropriate adjustment of the attachment position of the supporting shaft fitted with the first tube body on the vehicle body side panel, the second tube body fixed on the intermediate lever is fitted in said first tube body via the intermediate lever, and the lock releasing lever is fixed. By performing this operation, it is possible to easily adjust the height and position in the back-and-forth direction of the clutch pedal lever along the rotating locus of the tube body.

[0026]

As it is possible to make changes to the angle of said intermediate lever at will, there is no need to change the attachment position of the clutch master cylinder corresponding to the clutch pedal lever, and there is no affect on the length of the push rod. Consequently, there is no need to perform the operation to change the push rod.

[0027]

For the layout, even when the clutch master cylinder is attached to the front side of the lower dash panel, there is still no degradation in operability with respect to the setting of the clutch master cylinder, and the assembly operability is improved.

Brief description of the figures

Figure 1 is a partially exploded oblique view of an application example of the attachment structure for the clutch pedal of this invention.

Figure 2 is a side view illustrating the state of assembly of the attachment structure for the clutch pedal.

Figure 3 is a view from A in Figure 2.

Figure 4 is an oblique view illustrating the main portion in an example of the attachment structure for the conventional clutch pedal.

Brief explanation of reference numbers

- 1 Clutch pedal lever
- 3 Pedal pad
- 5 First tube body
- 7 Supporting shaft
- 9 Push rod
- 11 Attaching bracket
- 13 Clutch master cylinder
- 15 Reservoir tank
- 17, 30, 37 Spring return
- 19 Stopper bracket
- 21 Intermediate lever
- 23 Second tube body
- 25 Locking coil
- 25a Hook
- 31 Lock releasing lever

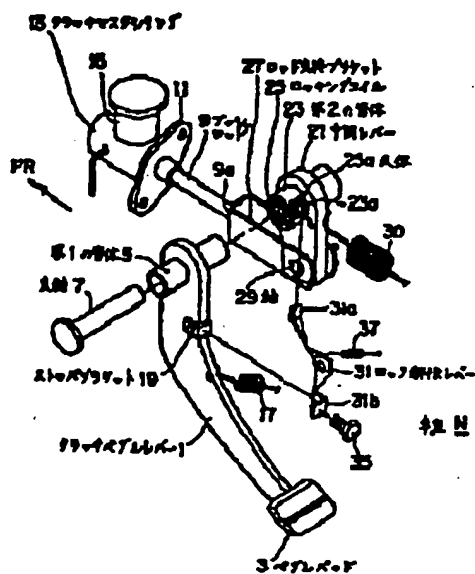


Figure 1

- Key: N Vehicle chamber
 1 Clutch pedal lever
 3 Pedal pad
 5 First tube body
 7 Supporting shaft
 9 Push rod
 13 Clutch master cylinder
 19 Stopper bracket
 21 Intermediate lever
 23 Second tube body
 25 Locking coil
 25a Hook
 27 Rod supporting bracket
 29 Shaft
 31 Lock releasing lever

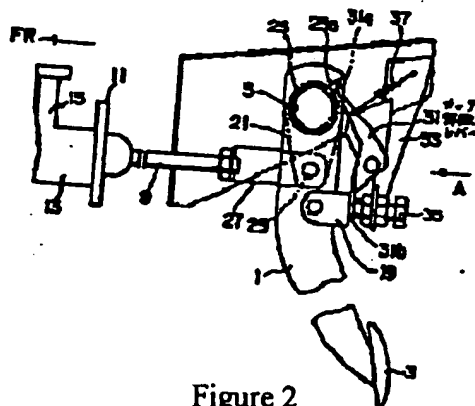


Figure 2

Key: 31 Lock releasing lever

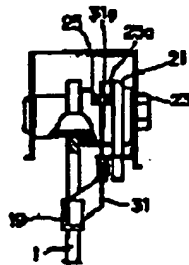


Figure 3

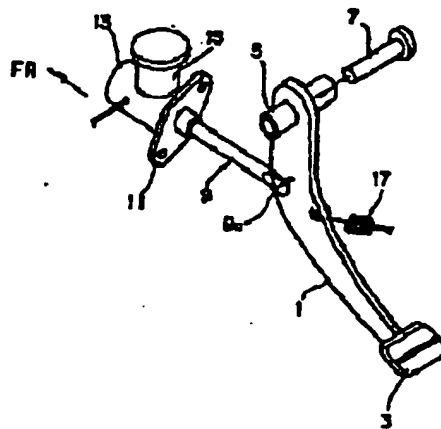


Figure 4